October 2, 2017

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Re: WT Docket No. 17-200 – Comments of Puloli, Inc.

Dear Ms. Dortch:

Puloli, Inc. hereby files these comments in response to the Notice of Inquiry ("NOI") in the above-referenced docket. Puloli is a vendor and a service provider of last-mile wide area wireless communications. As such, we see many emerging use-cases, applications, services, and verticals that can benefit from increased spectrum availability. We take a strong interest in ensuring that as much spectrum as possible is made available and that the Commission's rules provide maximum flexibility to support the next generation of technological advances.

The 896-901/935-940 MHz band is of particular interest to us. The band is attractive for many different services and applications due to its favorable RF propagation characteristics, though for more than 30 years, the band is significantly underutilized outside of major metro areas.

In addition, we see the boundaries between various service categories continuing to blur. What was once a clear separation of Business/Industrial/Land Transportation ("B/ILT") and Specialized Mobile Radio ("SMR") services and capabilities can now be realized through technical standards such as Long Term Evolution ("LTE") and related technologies developed by 3GPP. These include delivery of next generation push-to-talk, voice, video, and IoT.

While the LTE family has become the universally accepted standard in the commercial broadband marketplace, there has been limited opportunity for business enterprises and critical infrastructure entities to benefit from LTE functionality and economies of scale except as customers on commercial networks. These businesses often have coverage, reliability, security, priority access and other requirements that are not met by commercial systems in use today. A private carrier broadband network in a sub-1 GHz band, where infrastructure costs are manageable, would provide these entities a much needed, business-targeted option.

The LTE-based FirstNet system for first responders provides a reliable reference. LTE technology was selected for both its technical merits and economic advantages. Many of the services which will be offered over FirstNet are similar to the services and requirements expected by B/ILT and SMR users. Therefore, a solution employing a private LTE broadband network to serve B/ILT and SMR users, with minimal regulation, is also technically and economically viable.

A shared infrastructure will enable an efficient and very cost-competitive service offering in the band. The Commission asked *"would relatively smaller bandwidths (as compared to allocations commonly used by broadband providers in other bands) impact the costs of providing broadband service in this band"?*[1] Puloli believes that a shared infrastructure, with advanced radio front-end technology, will enable cost-competitive narrowband and broadband

[1] NOI at Paragraph 29.

services at or below the cost of current providers in other bands – including, the FirstNet offerings.

No one can predict the trajectory of technological and service capability evolution. The best and safest course by the Commission is to enable flexibility in the band while ensuring protection of incumbent users.

For all these reasons, Puloli supports the realignment proposal to create a 3/3 broadband and a 2/2 group of legacy narrowband users.[2] We believe it will be a win-win for all parties involved by meeting the critical communications needs of legacy B/ILT users while opening up new and advanced use of the spectrum. The 3 MHz LTE channelization will allow the support of concurrent services such as data, VoLTE (Voice over LTE), push-to-talk, Cat-M IoT, and NB-IoT. While all spectrum repurposing involves challenges and some degree of disruption, the relatively small number of incumbents will make this process less difficult in this band than in others.

In addition, at a minimum, the Commission should adopt the following:

- Relax channel aggregation rules beyond what is permissible today[3]. This will allow various modern channelization options, including 200 kHz, 1.4 MHz, 3 MHz, etc. based on local market demands.
- Relax power spectral density requirements beyond the current rules[4]. This will allow current and future radio technologies to be applied, including narrowband and broadband variants. This can be achieved by specifying out-of-band and adjacent channel emissions limits without constraining in-band power levels.

The critical infrastructure services community should not be left behind as consumers, first responders and other countries migrate to broadband technologies, modern services, and state-of-the-art devices. An LTE-based system tailored to their unique requirements is critical for their continued competitiveness in a world economy. The Commission should move as quickly as possible to issue a Notice of Proposed Rulemaking in this proceeding.

Sincerely,

Kethees Ketheesan
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[2] NOI at Paragraph 12.
[3] 47 CFR Part 90 Subpart S § 90.645
[4] 47 CFR Part 90 Subpart S § 90.635